

*Hab.* Ecuador?

Of the two skins in the Museum one was in Gould's Collection and one in our own, the latter having been obtained from Mr. Whitely. Both are males. The exact locality where this bird is found remains to be discovered; at present I can only say that the types are made up in the manner usual in collections of humming-birds from Ecuador.

*Eriocnemis ventralis.*

*Adult male.* Upper surface shining grass-green, becoming bronzy black on the hind neck and crown, and glittering olive-green on the rump and upper tail-coverts; under surface with the throat bronzy black, a glittering blue gular patch; breast glittering green, shading into glittering amethyst on the abdomen; under tail-coverts glittering purplish blue; tail steel-blue; tibial tufts pure white; bill black. Total length about 3.9 inches, wing 2.25; tail, central rectrices 1.05, lateral 1.65; bill 0.85.

*Hab.* Colombia.

BIBLIOGRAPHICAL NOTICES.

*Aids in Practical Geology.* By GRENVILLE A. COLE, F.G.S., Professor of Geology in the Royal College of Science for Ireland. 8vo. Pp. i-xiv & 1-402; with 136 illustrative cuts. C. Griffin & Co.: London, 1891.

CHAPTER I. treats of Geological observations to be made in the field, from lowland to upland and into the mountains, with the utensils required and the methods recommended. For the construction of maps and sections, Geikie's and Penning's books are referred to. Mr. Dalton's geometric process of determining the true dip between two uncertain dips in the sides of a quarry is given at page 6. For labels, mentioned at page 10, good pencil-writing will surely resist moisture better than ink. Chapter II. is short, but important; treating of the collecting and packing of specimens.

As the chief aim of this excellent manual is to teach the student, whether indoors or abroad, to recognize the various kinds of Rocks—sedimentary, igneous, and metamorphic—that constitute the solid portions of the Earth's surface, the knowledge of how to find out and discriminate their constituent minerals is of primary importance. Hence Chapters III.-IX. (pp. 13-83) treat of the physical characters

of minerals; tests with water and acids, and examination with the blowpipe; pleochroism is also treated of. Under each group of subjects numerous trustworthy authorities are plainly referred to, so that the latest discoveries and newest forms of apparatus are brought under the student's notice.

The examination of Rocks themselves occupies Chapters X.–XX. (pp. 84–265). First are briefly noticed “coarsely fragmental rocks;” then “ordinary stratified rocks,” and “cleaved and foliated rocks,” “Igneous rocks,” or those “that have consolidated from a state of fusion,” are more fully treated, under the headings (1) “glassy rocks,” (2) “lithoidal rocks,” and (3) “distinctly holocrystalline rocks.” “Some physical characters of rocks” is the title of Chapter XII.; and “the chemical examination of rocks” that of Chapter XIII. In the next chapter “the isolation of the constituents of rocks” is carefully elaborated after the experiences of Cordier, de Bellevue, Thoulet, Fouqué, Harada, Delesse, Evans, and Smecth. The microscope and its use in petrological examination, with references to Sorby, Wallich, Judd, Lévy, Lacroix, and others, and a list of the more important works treating of microscopic petrography, occupy Chapters XV. and XVI. A careful description of “the characters of the chief rock-forming minerals [as seen] in the rock mass and in thin sections” follows (pp. 139–169). In Chapter XVIII. the practical examination of the rocks themselves is entered upon. Firstly, the sedimentary strata (pp. 170–196), such as i. Sands, sandstones, grit-stones, gravels, pebble-gravels, conglomerates, and quartzites: ii. Volcanic agglomerates, tuffs, ashes, and brecciated lavas: iii. Clays and shales: iv. Shell-limestone, coral-limestone, nullipore-limestone, oolitic limestone, dolomite, and brecciated limestone: v. Bone-beds and phosphatic deposits: vi. Stalactites, stalagmites, travertine, siliceous sinter, gypsum, rock-salt: vii. Concretionary limestone, ironstone, also flint and chert: viii. Coal and anthracite. Secondly, the petrology of the igneous rocks, as to external (macroscopic) and internal (microscopic) appearances, is treated (like the foregoing division) *con amore*, and with references to other workers, in a full chapter (pp. 196–250). These rocks are here grouped as A. Holocrystalline:—granites and eurites; syenites; quartz-diorites and quartz-aphanites; diorites and aphanites; olivine-gabbros and olivine-dolerites; peridotites. B. Hemicrystalline: “Lithoidal rocks containing some glassy matter:”—rhyolites; trachytes and phonolites; andesites; basalts; limburgites; nephelinites and leucitites. C. “Highly glassy igneous rocks:”—obsidians; tachylytes. A synoptical table, at p. 250, is intended to give the above-mentioned grouping at a glance.

Chapter XX. (pp. 251–265) is shorter, but carefully constructed to treat of “Metamorphic rocks,” both those “affected by contact-metamorphism,” and those “affected by regional metamorphism.” Among the latter are—“crystalline limestones,” “cleaved rocks,” and “foliated rocks.”

The palæontological relations of strata occupy the rest of this

useful work (Chapters XXI.-XXVIII., pp. 266-390). This Part iv., entitled "the examination of fossils," is a condensed and matter-of-fact treatment of the subject, and probably, as far as it goes, the best of its kind yet published. The relationship of palæontology to zoology, and the extent to which either need be studied by students working for a good pass-examination, or by amateurs earnestly desirous of getting some mastery of the subject, are kept well in view. How fossils are found preserved in the strata, and how they may be preserved when they have been found in quarries and other sections, form a brief introduction to the study of fossils. The chief genera, or generic types, of Invertebrata are then concisely treated of in the order of their natural groups, from the Protozoa to the Crustacea, with notes on their distribution in the Geological series. Chapter XXVIII. is the last (pp. 379-390), and consists of a condensed "list of characteristic invertebrate fossils" for each of the geological formations from the "Harlech series" of the Cambrian upwards to the "Chillesford Beds" of the Pliocene.

To those who are especially desirous of working out the history of the Earth by such elucidation as petrology can give, this manual will be a very great help. An acquaintance with strata in their orderly arrangements and in their disturbed conditions is supposed either to have been attained, or to be looked for in other handbooks. So also the history of the formation of the strata in successive ages. Fossil remains of the vertebrate animals and of plants are also left to other teachers. With these intentional omissions, for reasons intimated or given in full, the book is very good for its purpose, being full of well-digested information, for the most part from the newest sources of information, and often from the author's personal research.

Of the 136 woodcut illustrations, 17 are concerned with apparatus necessary to the mineralogist and petrologist; 28 illustrate microscopic sections of rocks; and 91 are given to the fossils. A careful Index completes the work.

*The Honey-Bee: its Natural History, Anatomy, and Physiology.*

By T. W. COWAN, F.L.S., F.G.S., &c. Houlston & Sons: London, 1890.

THERE is probably no other insect which can boast of so voluminous a literature as this; and for precisely this reason the present little volume, the latest addition, will be heartily welcomed. In the short space of some 190 small octavo pages the author gives a concise account of the chief facts in the anatomy and physiology of the Hive-Bee, as now established after the discoveries of older workers have been tried by the ordeal of modern methods of investigation. Except in the case of facts long ago accepted, the names of authorities for statements in the text are in all cases given, and